

W. W. PURDOM.
MECHANICAL MOVEMENT.
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1,053,871.

Patented Feb. 18, 1913.

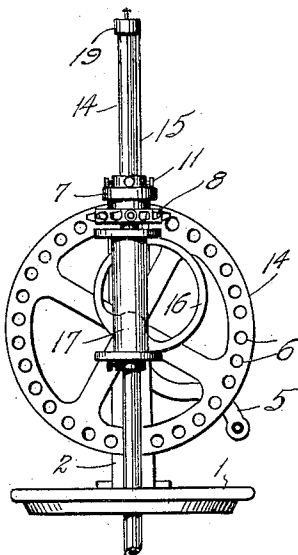


Fig. 1

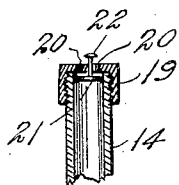


Fig. 4

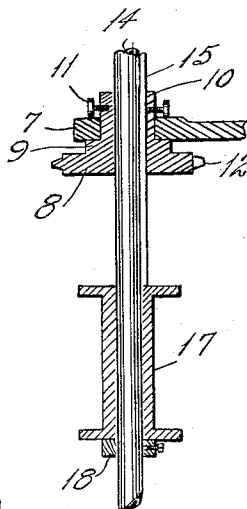


Fig. 3

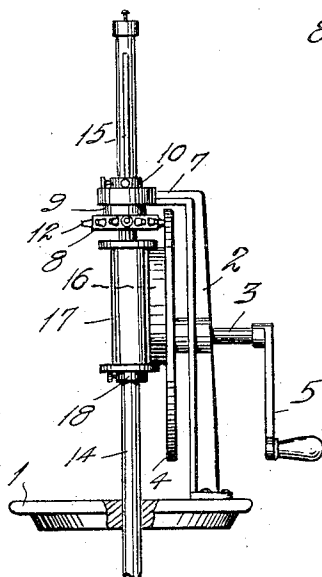


Fig. 2

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WILLIAM W. PURDOM, OF ST. LOUIS, MISSOURI.

MECHANICAL MOVEMENT.

1,053,871.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM W. PURDOM, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to new and useful improvements in mechanical movements and particularly to a device for producing combined rotary and reciprocating movements.

The object of the invention is to provide a device comprising a shaft or plunger member arranged in connection with a gearing and an eccentric whereby a reciprocating and rotary motion will be transmitted to the plunger.

Another object of the invention is the combination of a hollow plunger having a valve at one end for the admittance of air and means for imparting a rotary and reciprocating movement or spiral motion to the plunger whereby air is admitted to the plunger during its upward stroke and forced downward by the plunger during the downward stroke of the latter.

A still further object of the invention is to provide a device of the character described that will be strong, durable and efficient, and simple and comparatively inexpensive to produce, also one in which the several parts will not be likely to get out of working order.

With the above and other objects in view the invention has relation to certain novel features of construction and operation, an example of which is described in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is an elevation of the device, Fig. 2 is a similar view at right angles to Fig. 1, Fig. 3 is a detail in vertical section, and Fig. 4 is a detail of the plunger valve construction in section.

In the drawings the numeral 1 designates a base or support on which an upright standard 2 is mounted. At the central portion of the standard a horizontal shaft 3 is suitably mounted and has fixed on its inner end, a driving wheel 4. On the outer end of the shaft a crank lever 5 is secured by means of which the driving wheel may be revolved. The driving wheel is provided adjacent its periphery with a plurality of regularly spaced holes 6.

At the upper end of the standard a bearing

bracket 7 is provided so as to overhang the driving wheel. In this bearing bracket a spur wheel 8 is mounted. This spur wheel has a shouldered portion 9 engaging the under side of the bearing and is also formed with a reduced hub 10 passing through and projecting above the bearing bracket. Screws 11 engaged in the hub bear on the bracket and these with the shoulder 9 confine the spur wheel against vertical displacement, but permit it to freely rotate. The wheel 8 has tapered peripheral spurs 12 spaced so as to successively engage the holes 6 of the driving wheel when the latter is revolved, rotary motion thus being imparted to the wheel 8.

A hollow shaft or plunger 14 extends vertically through the wheel 8 and is provided with a longitudinal key 15 also passing through said wheel 8 and by means of which rotary motion is transmitted to the plunger. On the face of the driving wheel an eccentric 16 is secured so as to engage a spool 17 rotatably confined on the plunger. This spool engages the lower end of the key 15 and is supported on the plunger by a collar 18.

It is apparent that when the wheel 4 is revolved the eccentric through the agency of the spool will impart a reciprocating movement to the plunger, the elongated key maintaining the connection between the wheel and the plunger. The plunger is thus rotated and reciprocated at the same time. It is apparent that the plunger is given substantially a spiral movement. At the upper end of the plunger a cap 19 is fastened. This cap has orifices 20 which admit air when the plunger is moved upward. A disk valve 21 is supported in the plunger under the cap by a headed stem 22 which limits the downward movement of said valve. When the plunger is moved downward under certain conditions a pressure of air attained in the plunger will seat the valve whereby the pressure of said air will be increased.

A movement of this character is particularly desirable for churns and other devices where a combined rotary and reciprocating movement in combination with an air admitting and compressing arrangement is necessary. The movement may be used for other purposes and will be found simple and efficient.

It is further pointed out that the base 1

has a hole in the center through which the plunger 14 passes, said hole and the bracket 7 maintain the plunger in vertical alinement.

What I claim, is:

5 1. In combination, a hollow plunger having a closure at one end provided with air admitting ports, a driving member mounted adjacent the plunger, a driven member mounted on the plunger and arranged to
10 engage with the driving member and impart rotary motion to the plunger, an eccentric having connection with the driving member, and a member mounted on the plunger and engaging the eccentric and arranged for imparting a reciprocatory movement to the plunger.

2. In a device of the character described, a base, a standard mounted on the base, a driving wheel mounted on the standard, a
20 crank lever connected to the wheel, a bear-

ing bracket on the standard overhanging the driving wheel, a spur wheel having a shouldered hub passing through the bracket, said spur wheel being supported horizontally and engaging the driving wheel, a
25 plunger passing through the spur wheel, an elongated key mounted on the plunger and engaging with the spur wheel, an eccentric mounted on the face of the driving wheel, and a spool rotatably confined on the plunger and receiving the eccentric, said spool
30 impinging the lower end of the key.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM W. PURDOM.

Witnesses:

CHAS. G. REINER,
FRED. KRAEMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
